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**UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF CALIFORNIA
SAN FRANCISCO DIVISION**

ORACLE AMERICA, INC.

Plaintiff,

v.

GOOGLE, INC.

Defendant.

Case No. CV 10-03561 WHA

**DECLARATION OF MARK REINHOLD
IN SUPPORT OF ORACLE AMERICA,
INC.'S OPPOSITION TO GOOGLE'S
MOTION TO STRIKE PORTIONS OF
THIRD EXPERT REPORT**

Dept.: Courtroom 8, 19th Floor
Judge: Honorable William H. Alsup

1 I, MARK REINHOLD, declare as follows:

2 1. I am an employee of Oracle America, Inc. ("Oracle"). My title is Chief Architect of
3 the Java Platform Group.

4 2. I have personal knowledge of the facts set forth herein. If called upon to testify, I
5 could and would testify as follows.

6 3. I hold a Ph.D. in Computer Science from the Massachusetts Institute of Technology,
7 where I worked on garbage collection, compilation techniques, type systems, semantics, and the
8 visualization and analysis of program performance. I hold a number of patents on Java technologies.

9 4. I have been employed as an engineer with Sun Microsystems, Inc. ("Sun"), now
10 Oracle, since August 1996. Throughout my years of working at Sun, now Oracle, I have become
11 very familiar with Java technologies, and I have helped to design and improve the Java platform as
12 part of my regular work responsibilities.

13 5. For example, I created some of the platform's foundational input/output facilities
14 starting with the Java 1.1 release in 1997, and I served in key technical-leadership roles during the
15 development of most subsequent releases. In my current role as Chief Architect of the Java Platform
16 Group at Oracle my technical supervisory responsibilities encompass the Java SE platform and also,
17 more recently, the closely-related Java ME platform.

18 6. I was therefore employed at Sun, and knowledgeable about the Java technology, in the
19 2006 time frame, when Sun and Google were actually negotiating for a Java license for Android. I
20 was not, however, involved in those negotiations myself, either directly or indirectly.

21 7. In addition to the experience I outlined above, I have direct experience with a number
22 of Java patents. I furthermore have direct experience in evaluating Java patents, having served on
23 various patent-disclosure review committees during my time at Sun.

24 8. I, along with four of my colleagues at Oracle, was asked by counsel for Oracle to
25 conduct an analysis of certain patents held by Sun Microsystems, Inc. in the spring of 2006.
26 Specifically, counsel requested that we determine which of Sun's Java patents would have been
27 potentially relevant to a smartphone platform in 2006, and then determine which of those patents
28

1 would have been expected, from an engineering perspective, to provide the greatest benefits to such a
2 platform.

3 9. I was specifically asked by counsel for Oracle to lead the patent-analysis process. I
4 understood that I would make all final decisions as to each patent wherever there was a disagreement
5 as to that patent's categorization or importance. My colleagues assisted me, both in the interest of
6 time and in order to ensure that the ultimate analysis was as accurate and comprehensive as possible.

7 10. After consulting with my colleagues I concluded that we could provide the analysis
8 requested by counsel through the following steps:

- 9 • Identify relevant logical functional components or "blocks" of technology corresponding
- 10 to functions that would be expected to be useful to a smartphone platform in 2006;
- 11 • Identify what subset of Sun's patent portfolio would have been useful to a smartphone
- 12 platform in 2006;
- 13 • Assign those potentially relevant patents to the technology blocks;
- 14 • Rank the relative importance of the technology blocks; and
- 15 • Rank the relative importance of the patents within each technology block.

16 11. I was not asked to provide any economic valuation of the patents in suit. Instead, my
17 analysis of "value" was confined to the qualitative engineering benefit that the patents would be
18 expected to provide a smartphone platform.

19 12. I was asked to provide assistance in this project on January 23, 2012. I spoke with
20 Prof. Iain Cockburn on three occasions, as discussed below. I had not been asked to provide any
21 assistance to Prof. Cockburn before then. My first conversation with Prof. Cockburn was on January
22 23, 2012. In that conversation, Prof. Cockburn explained the nature of the assignment.

23 13. That day or the next, on or about January 24, 2012, I met with the four other
24 engineers—Hinkmond Wong, Peter Kessler, Chris Plummer, and John Rose—to start work on the
25 patent-portfolio analysis that Prof. Cockburn had asked me to perform.

26 14. At the outset of the process, I understand that George Simion of Oracle ran searches
27 through Sun's patent databases to acquire a list of over 1,300 Java related patents that we were to
28

1 review. I reviewed this list to make sure that it included all of the patents that I would expect to see,
2 and confirmed that it did.

3 15. In the first step of the process, our team, led by me, identified the initial set of
4 technology blocks that would have been relevant to a smartphone platform in 2006. We
5 brainstormed the list of logical functional components on or about January 24, 2012; over the course
6 of the next few days, we refined that list to come up with the final list of 22 blocks.

7 16. In order to perform this exercise, I used my personal experience, expertise,
8 understanding of Google's objectives in 2006 based on a Product Requirements Document that I
9 understand Google provided to Sun in 2006, and knowledge of the Java platform. I am confident that
10 the 22 technology blocks that we identified represent the full range of Java technology that would
11 have been relevant to a smartphone in 2006.

12 17. In the second step of the process, our team as a whole, led by me, reviewed every one
13 of the patents in the list of 1,300+ patents captured by the searches discussed above to determine
14 which patents would have been relevant to a smartphone platform in 2006 and to categorize each
15 such patent into one of the aforementioned technology blocks.

- 16 • We divided the set of 1,300+ patents amongst ourselves, assigning each patent to one
17 engineer for initial evaluation. We could not all look at every patent because of
18 limitations on time. I personally looked with care at each patent I was assigned to
19 evaluate, and I have no reason to believe my colleagues did not do the same.
- 20 • We reviewed the patents by looking at the titles, abstracts, descriptions, application
21 dates, and inventor names. When we believed it would be useful to do so, we also
22 reviewed the claims by retrieving the patent from the USPTO web site. This is a
23 reasonable way to ascertain a patent's rough usefulness in a smartphone because, in
24 my experience, the abstract and description are written by engineers, will provide the
25 most useful information to another engineer, and will explain the general purpose of a
26 patent and its claimed invention with enough specificity to understand its scope,
27 application, and potential advantages. In contrast, in my experience information in
28 patent claims is less useful.

- Although reviewing and categorizing the patents was time-consuming, it was not particularly hard. Patents related to improvements in Java technology use familiar terms, and in many cases I myself or another member of the team had direct experience with the invention or implementations of the invention.
- I finished reviewing my portion of the 1,300+ patents on or about January 26, 2012.
- When we had each finished classifying the patents we were assigned to review, the members of the team who had special expertise with one or more of the technology blocks reviewed and confirmed the accuracy of our categorizations. We discussed any inconsistently classified patents, and discussed any patents that I or one of my colleagues had indicated needed further attention or discussion.

18. At the end of this part of the process, I personally reviewed the merged list of categorized patents that we had determined could have been relevant in a smartphone platform in 2006. In consultation with the rest of the team I made minor adjustments and corrections to the list. The final responsibility for deciding upon the list of potentially relevant patents fell to me. At this point I concluded that 569 patents out of the original 1,300+ would, in fact, be potentially relevant to a smartphone platform in 2006, and I had classified each of those patents into one of the 22 technology blocks.

19. In the third step of the process, our team, led by me, ranked the 22 technology blocks. We distinguished among them by determining the benefits they would be expected to provide a smartphone platform in terms of speed, startup, footprint (i.e., memory requirements), and security.

- We determined that these four criteria were reasonable criteria on which to rank the technology blocks because software patents in the Java portfolio are almost always designed to provide at least one of these benefits. In my experience, and based on my knowledge of the Java platform, if I were to consider what benefits I would want to provide a Java-based smartphone in 2006, these are the criteria I would choose. These are the criteria that we routinely used at Sun and now at Oracle to evaluate our own Java inventions and implementations.
- We ranked these blocks independent of the patents that were contained within them.

- Based on our ranking system, two or more blocks occasionally tied.

20. We completed this part of the process on or about January 31, 2012. I discussed this intermediate result with Prof. Cockburn on or about that date.

21. In the fourth step of the process, our team, led by me, reviewed the specific patents within their technology blocks and evaluated each patent on a three-point scale, in which the best score was a 1. The ratings reflect the benefit that our team, led by me, would have expected a patent to provide a smartphone platform in 2006. The top rating, a 1, was reserved for those patents that were either required by the Java platform specification for compatibility, or that would bring an order of magnitude improvement to at least one of the key metrics of speed, startup, or footprint. The middle rating, 2, was assigned to patents that would bring a significant improvement to at least one of the key metrics of speed, startup, or footprint. The bottom rating, 3, was assigned to patents that would have been relevant but would not have provided the benefits of a 1 or 2 ranked patent.

22. By the time we began to rate the patents, we had reviewed many of them multiple times. That knowledge, combined with our pre-existing familiarity with the underlying technologies and inventions, gives me high confidence that we had sufficient information to make an informed engineering assessment of the likely benefits of each patent. I and other senior engineers at Oracle, including each of the other engineers on this assignment, are regularly called upon to make assessments of proposed innovations and improvements to Java technology. I and other engineers frequently make those assessments using information that is no more detailed than what is disclosed in the patent abstracts and descriptions. In addition, in many cases I was able to apply my own knowledge of how the inventions had been implemented and the performance benefits (or lack thereof) that resulted. The other engineers often had similar experiences that they shared with the team as we reviewed the patents.

23. In summary, I concluded, with the help of the team, that:

- A set of 569 patents would have been relevant to a smartphone in 2006.
- Those 569 patents fit into 22 technology blocks.
- The most important technology block is the Boot block.
- There are seven patents rated as 1 in the Boot block.

- The second most important technology block is the JIT block.
- There are twelve patents rated as 1 in the JIT block.
- The third most important technology block is the Interpreter block.
- There are three patents rated as 1 in the Interpreter block.
- It would not have been possible, based solely on engineering considerations knowable in 2006, to say which of the 22 patents in the top three blocks would have been the most or least valuable to a smartphone platform such as Android.

24. At the conclusion of this process, I provided Prof. Cockburn with a spreadsheet that summarized my work and conclusions, and I discussed with him our process and the conclusions that I had reached. I believe that both the process we employed, and the results we came to, are reasonable and accurate. If I were on a team assigned to design a Java-based smartphone platform in 2006 then three most important blocks of technology in terms of startup, speed, and footprint would have been Boot, JIT, and Interpreter.

25. I am confident that the team had sufficient information to ascertain the correct rating for each patent, and that we had sufficient collective experience and expertise with the Java platform to understand the relative importance of every one of the technology blocks relevant to a smartphone platform in 2006 and every one of the patents in the list of 569. I do not believe that there is anyone at Oracle that we could have added to the team who would have improved the accuracy of the process or the results.

26. I considered each patent and technology block based on the engineering benefit I would have expected it to provide to a smartphone platform in 2006, in light of my engineering experience and my knowledge of Java technology. I have never been involved in any analysis to determine whether Android infringes any patent held by Sun or Oracle. I understand that Google has claimed in papers filed with the Court that I and my colleagues are “the very engineers who selected litigation patents at the outset.” I know that statement to be false with respect to me. I have never selected any patents for this litigation or any other.

27. I understand that Google has also claimed in papers filed with the Court that I and my colleagues “admitted in deposition that they spent next to no time compiling their rankings.” I know

1 that assertion is entirely untrue with regard to me, and is furthermore contrary to everything I
2 observed as I watched my colleagues perform their work alongside me. Together we spent
3 significant time categorizing, evaluating, and rating the patents, and we applied decades of directly
4 relevant engineering experience to do so. There was sufficient time to do the analysis that we were
5 asked to do, and to do it in a reliable and responsible manner. I have no reason to believe that any of
6 the other engineers “favor[ed]” any of the asserted patents for any reason related to the litigation, and
7 I have no reason to believe that they were “influenced” by any prior work in the litigation.

8 I declare under penalty of perjury that the foregoing is true and correct.

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10 DATED: February 23, 2012

/s/ Mark Reinhold

11 MARK REINHOLD
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ATTESTATION OF FILER

I, Steven C. Holtzman, have obtained Mr. Mark Reinhold's concurrence to file this document on his behalf.

Dated: February 24, 2012

BOIES, SCHILLER & FLEXNER LLP

By: /s/ Steven C. Holtzman
Steven C. Holtzman

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